Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of

Amendment of Parts 73 and 74 of the Commission's Rules to Establish Rules for Digital Low Power Television, Television Translator, and Television Booster Stations and to Amend Rules for Digital Class A Television Stations	))))))	MB Docket No. 03-185

COMMENTS OF HARRIS CORPORATION

Harris Corporation ("Harris") respectfully submits comments in response to the Federal Communications Commission's ("Commission") Notice of Proposed Rulemaking ("*NPRM*") in the above-captioned proceeding concerning the Commission's amendment of Parts 73 and 74 to establish rules for digital Low Power Television ("LPTV") and other stations.[1]

I. Introduction and Summary

Harris is an international communications equipment company with five operating divisions that offer products and services in the microwave, broadcast, network support, secure tactical radio, and government communications systems markets. Harris's Broadcast Communication Division is the world leader in digital solutions for television broadcasting and has been at the forefront of the transition to digital television, supplying the majority of the digital television ("DTV") transmitters and encoders in the United States.

[1] *In the Matter of Amendment of Parts 73 and 74 of the Commission's Rules to Establish Rules for Digital Low Power Television, Television Translator, and Television Booster Stations and to Amend Rules for Digital Class A Television Stations*, MB Docket No. 03-185, rel. August 29, 2003 (hereinafter "*NPRM*").

Harris commends the Commission for its diligent work in ensuring that the transition to DTV is one that is completed as expeditiously as possible and in a manner that serves the best interest of the American public. As the Commission is aware, translators and LPTV stations will play a significant role in furthering the transition to digital television because viewers in many communities depend on the services of TV translators and LPTV stations for their over-the-air television service. Thus, the Commission's *NPRM* is critical in ensuring that American viewers, regardless of location, have access to digital signals.

II. The Commission Should Remain Technologically Neutral When Evaluating Transmission Modes for Digital TV Translators.

Harris respects the Commission's desire to evaluate transmission modes for DTV translators and determine the most effective mode for transmission of the digital signal. However, Harris cautions the Commission to refrain from "choosing" a technology at this time. Harris believes that the Commission should encourage the development of both heterodyne and regenerative digital translators. In doing so, the Commission will be in the position of spurring innovation with regard to digital TV translator technology. Moreover, as the Commission aptly noted, one technology may meet the needs of one community at a lower cost while the other may be necessary to ensure a reliable signal.[2] As such, the Commission should refrain from regulating the technology and encourage the development of both heterodyne and regenerative digital translators. Nevertheless, Harris recommends that the Commission refrain from licensing digital translators for digital rebroadcasts of analog input signals at this time.

[2] Id. at 14

III. The Commission Should Encourage Development of Technical Solutions That Provide For Local Message Insertion and Transmission.

In the *NPRM* the Commission notes that it is likely that translator operators will limit their use of digital translators to rebroadcasts of DTV signals but that some eventually may wish to use digital translators to transmit the types of local messages now allowed for analog translators.[3] The Commission noted:

> We believe that permitting such messages could benefit translator-served communities, provided that a technically feasible and affordable means for doing so exists or could be developed.[4]

Harris believes that the Commission should encourage development of technical solutions that will allow local message insertion and transmission. Most solutions currently in place are targeted at program origination stations. PSIP, in particular, allows for economical insertion of local programming and transmission identification information.

IV. The Commission Should Require Development Of Technical Standards To Mitigate Interference Potential

The Commission recognizes there are two primary technical issues for equipment standards that must be addressed to ensure interference potential is mitigated: the emission mask and the transmitter's ability to operate within its rated output power.[5]

When an LPTV transmitter's power levels are increased, the transmission of the signal ceases to be linear in nature and results in spurious emissions. Spurious emissions lead inevitably to interference with operations in adjacent channels. The recommendation set forth in the *NPRM* proposes "digital LPTV transmitters and TV

[3] Id. at 15.
[4] Id.
[5] Id. at 75.

translators must comply with emission mask(s) established in this proceeding, measured at the transmitter/translator output terminal (after output filtering)."[6] Harris supports the Commission's recommendation that digital LPTV transmitters and TV translators must comply with emission masks. By mandating the use of emission masks in the equipment standards for digital LPTV transmitters, the Commission will help to ensure that interference issues are mitigated. Moreover, emission mask filter solutions are economical for digital LPTV transmitters and repeater applications and, as a result, should be required in all cases to ensure mask compliance.

As noted above, spurious emissions result when an LPTV transmitter's power level is increased. Thus, the result not only causes co-channel interference but also out-of-channel interference because emission levels rise rapidly if a digital transmitter is operated at excessive power levels.[7] The transmitter's ability to operate within its rated output power becomes critical to mitigating co-channel and out-of-channel interference. Harris believes that the Commission should require development of technical standards that would allow the implementation of automatic level control for low power DTV transmitters and repeaters based on sampling of the output power at the transmitter's power amplifier. In ensuring that transmitters are designed to incorporate the automatic level controls for digital LPTV transmitters and repeaters, the Commission will help mitigate interference to co-channel and out-of-channel operators.

[6] Id. at 77.
[7] Id. at 76.

V. The Commission Should Require All Equipment Be Certified By Original Equipment Manufacturer.

There are a wide variety of technologies in use today for LPTV transmitters. Given the disparity in technologies, no viable method exists to ensure that the conversion from analog to digital LPTV transmitters will not cause interference to others operating in adjacent bands. Harris believes that the best balance between cost and technical risk management requires that all equipment be certified by the original equipment manufacturer for the exact digital LPTV service for which it is being used. Moreover, the original equipment manufacturer is best positioned to provide certification of digital LPTV equipment.

VI. The Commission Should Mandate the Broadcast of Digital Station Identification Information.

Harris believes that the broadcast of digital station identification information is an essential aspect of the transition to digital service. Therefore Harris strongly urges the Commission to adopt station identification rules for LPTV stations and TV translators. In order to effectuate station identification, broadcasters may utilize fixed PSIP insertion equipment, which is sufficiently low cost to allow its usage for digital LPTV and translator stations.

VII. The Commission Should Defer Consideration of Creating Digital Booster Class of station in LPTV Service Rules.

Harris believes that digital boosters may assist in the provision of universal access to over-the-air digital television. Nevertheless, Harris strongly recommends that the Commission should focus its initial rulemaking in this area on full-service broadcasters.

After the digital transition is complete, it will be appropriate to consider the technical issues and risks of extending digital booster licensing to digital Class A, LPTV and TV translator stations.

VIII. Conclusion

Harris respects the Commission's commitment to ensuring the rollout of digital television to all American viewers and appreciates the opportunity to submit comments with regard to the service rules for digital LPTV stations and related television booster stations.

Respectfully submitted,

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